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SOURCE MATERIALS ON WATER POLLUTION CONTROL

Carl E. Schwob

Public Health Service
Washington, D. C.

27 August 1952

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source materials on

Water Pollution Control

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FEDERAL SECURITY AGENCY
Public Health Service
Division of Water Pollution Control

Foreword

Pollution of our American waterways is as old as the first settlement on this continent. Since that time it has increased steadily as our cities and industries have grown. Their greatly accelerated growth in the past fifty years has made pollution a serious national problem.

A considerable body of literature on the subject has been developed in recent years. Much of it is technical, written by and for scientists and engineers. There are also, however, an increasing number of publications designed to present basic facts on pollution to the general public.

This listing of *Source Materials* is by no means a complete bibliography. It is merely representative of the literature now in print, both technical and non-technical. Listings have been revised in the light of more than two years' use since first issued in May 1950.

Copies of most of the materials listed may be obtained from this Division free upon request. For publications not available from this Division, sources are noted and sales prices given as applicable. This listing and the free publications are made available in accordance with the Water Pollution Control Act of June 30, 1948, which states that the Surgeon General of the Public Health Service shall collect and disseminate information on water pollution and its abatement. Additional information on the subject may be obtained either from this Division or from the State and Interstate agencies listed on pages 19-21 of this pamphlet.

Carl E. Schwob

Carl E. Schwob, Chief
Division of Water
Pollution Control

August 27, 1952

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A. GENERAL INFORMATION AND BACKGROUND

(A-1) *Water Pollution in the United States.* 44pp., illus.

Summary report of pollution conditions in the U. S. produced cooperatively by State, Interstate and Federal agencies. Written in non-technical language, illustrated with photographs, charts and graphs. Describes where we stand on pollution and what needs to be done to restore the quality of our waters.

"*Summary Report on Water Pollution:*

(A-2) *Tennessee River Drainage Basin*
(A-3) *Missouri River Drainage Basin*
(A-4) *Great Basin Drainage Basin*
(A-5) *California Drainage Basins*
(A-6) *Pacific Northwest Drainage Basins*
(A-7) *New England Drainage Basins*
(A-8) *Western Gulf Drainage Basin*
(A-9) *Colorado River Drainage Basin*
(A-10) *North Atlantic Drainage Basins*
(A-11) *Lake Erie Drainage Basin*
(A-12) *Ohio River Drainage Basin*
(A-13) *Southeast Drainage Basins*
(A-14) *Western Great Lakes Drainage Basin*
(A-15) *Upper Mississippi Drainage Basin*
(A-16) *Southwest-Lower Mississippi Drainage Basins*

Series of reports on pollution conditions in each of the major drainage-basin areas of the country. Communities and industries needing waste treatment facilities are named in most of the reports. Primarily designed for use of technically trained people. Illustrated with maps, average size 88pp. •Limited supply, distribution of each report restricted principally to area covered.

(Note: 8-page illustrated digests of these reports, designed for general distribution, are now under preparation.)

(A-17) *The Fight to Save America's Waters.* 16pp., illus.

Dramatized picture booklet of the effects of pollution, drawn by Ed Dodd and featuring the comic strip character Mark Trail. Tells how two communities solved pollution problems through citizen action.

(A-18) Water Pollution Control Excerpts from "*A Water Policy for the American People.*" 27pp., illus.

Excerpts from report of the President's Water Resources Policy Commission, 1950. Report discusses the growth of water pollution with relation to national trends, and the subsequent effect on health, sanitation, industrial and agricultural production, and recreation. The commission suggests point by point recommendations for meeting this national problem.

(A-19) *Sewage and Industrial Waste Treatment- 1951.* 14pp., mimeo. Reprinted from "Water and Sewage Works," February 1952.

A comprehensive review of nationwide progress, developments and trends in the field of sewage and industrial waste treatment during 1951 by Earnest Boyce.

President, Federation of Sewage and Industrial Wastes Associations, and Chairman, Department of Civil Engineering, University of Michigan, Ann Arbor.

(A-20) *Stream Pollution Control--A Function of Good Government.* 15pp., mimeo.

Talk by Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service. Summarizes national and local pollution control needs, defense requirements with regard to pollution control, and need for additional State legislation.

(A-21) *Pollution Abatement in the United States.* 13pp., mimeo.

Talk by Mark D. Hollis, Assistant Surgeon General, U. S. Public Health Service. Summarizes present national pollution situation, urban and industrial trends, defense requirements and need for State legislation.

(A-22) *The Sanitary Engineer and National Preparedness.* 12pp., mimeo.

Paper by M. Allen Pond, Chief, Division of Engineering Resources, U. S. Public Health Service, on national defense problems in the sanitary engineering field. Includes discussion of needs for accelerated construction of wastes treatment works to provide for national industrial expansion, pressing present needs brought on by World War II urban and industrial expansion, and necessity of locating and evaluating sources of pollution, determining critical defense area needs, and providing for remedial and preventive measures. An analysis of present supply of sanitary engineering personnel with forecast of future needs.

(A-23) *The Nationwide Water Pollution Control Program Under State and Federal Cooperation.* 10pp., mimeo.

Talk by Carl E. Schwob, Chief, Division of Water Pollution Control, U. S. Public Health Service, outlining cooperative action of the States, Federal government, industry, conservation groups and others for the prevention and abatement of pollution under the Water Pollution Control Act of 1948 (Public Law 845, 80th Congress).

Stresses need for support and encouragement of construction program of sewage and industrial waste treatment facilities as an aid to military preparedness and defense production, and maintenance and expansion of "our basic economic strength and basic public health protection."

(A-24) *The Water Pollution Control Program Under Public Law 845.* 17pp., mimeo.

Talk by Alfred H. Wieters, Assistant Chief, Division of Water Pollution Control, U. S. Public Health Service, explaining the program of pollution prevention and abatement being carried on under Public Law 845. Emphasizes need of close cooperation between the States, Federal government, industry, and others, and of support of citizen organizations and the public in preserving the quality of the Nation's water resources.

(A-25) *Water Pollution Control.* 11pp., mimeo.

Talk by Leonard B. Dworsky, Chief, Reports and Education Branch, Division of Water Pollution Control, PHS, on what is being done to solve the water pollution problem.

Outlines ways in which the facts about water pollution may be presented to the public clearly and effectively.

(A-28) *International Aspects of Stream Pollution.* 13pp., mimeo.

Talk by L. M. Fisher, Sanitary Engineer Director (Retired), U. S. Public Health Service, dealing with international aspects of stream pollution affecting both borders of the United States.

Discusses in detail the treaties between the U. S. and Great Britain, and the U. S. and Mexico, under which "cooperative and effective action is being taken to solve a mutual problem.

(A-27) *Nationwide Inventory of Sanitation Needs.* Supplement 204 to "Public Health Reports," April 1948. 44pp.

Supplement based on an intensive survey of existing facilities (1946) by the U. S. Public Health Service in cooperation with State and local health departments. Survey limited to determining needs of the people in fields of water supply, sewerage and sewage treatment, and refuse disposal.

(A-26) *Map of United States Showing Drainage Basin Areas and Headquarters' Cities.* Size 10" by 16".

B. COMMUNITY ACTION

(B-1) *Packet of Educational Materials on Water Pollution.*

A kit designed primarily to aid community leaders in presenting programs on pollution control to civic clubs, women's clubs, sportsmen's groups, etc. Contains a number of the pamphlets listed herein, plus a set of background readings on our water resources and a Chairman's Guide which includes suggested programs, sources of movies and speakers, sources of local information, etc.

(B-2) *Clean Water Is Everybody's Business.* 16pp., illus.

Popular booklet describing a five-step program of public action for developing comprehensive pollution control plans, stimulating construction of treatment works, providing technical aid and research, and encouraging recovery and use of waste products. Stresses need for local initiative and responsibility.

(B-3) *Running Sores on Our Land.* 4pp., illus.

Reprint of article by Bill Wolf from "Sports Afield" magazine, presenting the case against the country's stream pollution, and urging citizen action to combat it.

(B-4) *A Public Information Program for Water Pollution Control in Pennsylvania.* 14pp., mimeo.

Report of a State program designed to stimulate democratic action on pollution control.

(B-5) *The City Tells Its Story.* 8pp. Reprinted from "The American City," November 1951.

Henry Davis Hadig, Executive Director, Government Public Relations Association, tells how a skillfully planned and well executed public relations program in Miami Beach, Fla. helped insure a highly successful bond-issue referendum paving the way for financing of sewer and waterworks improvements and other city-wide projects.

(B-6) *Keep Food Canal Waters Clean.* 3pp., mimeo.

An account of a successful community project in pollution control by a women's club group, reprinted from "Christian Science Monitor."

C. FINANCING AND ECONOMIC FACTORS

(C-1) *Some Fundamental Considerations in Revenue Financing of Water Supply and Sewage Disposal Projects with Special Reference to Rate Structures.* 8pp., mimeo.

Address by Samuel A. Greeley before the Section of Municipal Law, American Bar Association.

(C-2) *Fundamental Principles of Financing, Organizing and Constructing Water and Sewage Works.* 31pp., mimeo.

Paper by Samuel A. Greeley for Pan American Engineering Congress, Rio de Janeiro, Brazil. Describes "organizing and financing methods in use in the United States for constructing water and sewage works and . . . related fundamental principles."

(C-3) *It Takes Money To Do the Job--But It's Worth It!.* 8pp., mimeo.

Paper by W. H. Wisely--presented at regional meeting of General Federation of Women's Clubs--indicating cost, in dollars and cents, to the average family for pollution abatement; also benefits received from abatement.

(C-4) *Intermunicipal Cooperation in Sewage Disposal.* 8pp., mimeo. From "Public Management," September 1942.

Discussion by Emil F. Jars, Research Assistant in Public Administration, University of Chicago, of the three forms of intermunicipal cooperation in this field.

(C-5) *Determination of Fair Sewage Service Charges for Industrial Wastes.* 33pp., mimeo. Reprinted from "Sewage and Industrial Wastes" journal, December 1951.

Paper by George J. Schroepfer, Professor of Sanitary Engineering, University of Minnesota, on "the problem of presenting a fair basis of charges to industry in the usual situation where its wastes are discharged into the municipal system. It is limited to a consideration of those wastes which are amenable to treatment in conventional plants, and excludes such wastes which because of their toxicity or chemical composition would cause serious difficulties in the plant or subsequently in the receiving waters." (Bibliography.)

(C-6) *Financing Sewage Works.* 14pp., mimeo. Excerpts reprinted from "Sewage and Industrial Wastes" journal, April 1947.

Francis S. Friel, President, Albright and Friel, Inc., Consulting Engineers (Philadelphia), concludes that the "trend today is toward use of revenue bonds [by the municipality in financing the construction of sewer systems and sewage treatment facilities] and toward the establishment of sanitary districts, commissions or authorities."

(C-7) *Fundamental Considerations in Rates and Rate Structures for Water and Sewage Works.* 187pp. Reprinted from "Ohio State Law Journal," Spring 1951. (ASCE Bulletin No. 2)

Joint report of committees of the American Society of Civil Engineers; Section of Municipal Law, American Bar Association, and representatives of

the: American Water Works Association, National Association of Railroad and Utilities Commissioners, Municipal Finance Officers Association, Federation of Sewage Works Associations, American Public Works Association, and Investment Bankers Association of America.

Reprints available from the Executive Secretary, American Society of Civil Engineers, 33 West 39th St., New York 18, N. Y.

(C-8) *Tampa Makes Sewage Treatment Financially Sound.* 3pp., mimeo. Reprinted from "The American City," October 1951.

Donald Newton, Resident Engineer, Greeley and Hansen, Consulting Engineers, Chicago, points out that Tampa (Florida) "is one of a very few cities to finance its entire sewerage-expansion program, including both sewers and treatment works, entirely by means of revenue certificates." A new plant and sewerage system--a 12-million dollar improvement--are to be financed entirely by revenue bonds paid out of sewer-service charges guaranteed by water-plant earnings.

(Note: A12- to 16-page illustrated booklet on municipal financing of sewage treatment works, designed for the general public, is now under preparation by the Division of Water Pollution Control, U. S. Public Health Service.)

D. LAWS AND REGULATIONS

(D-1) *Public Law 845 [80th Congress, June 30, 1948] (Water Pollution Control Act).* 7pp.

Reprint of the complete law.

(D-2) *Suggested State Water Pollution Control Act and Explanatory Statement.* 24pp.

An adoption of the best practices from existing State statutes as a framework for adequate State legislation. The Council of State Governments has endorsed this suggested act which was developed through the cooperation of more than 800 individuals and groups.

(D-3) *Water Pollution Legislation and Administration.* 9pp. Reprint from "Industrial and Engineering Chemistry," December 1951.

Article by Vinton W. Bacon, California State Water Pollution Control Board, and F. E. DeMartini and R. H. Harris, Division of Water Pollution Control, PHS, digesting existing water pollution control statutes, regulations and administration of the States of Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming. Paper divided into two main parts: digest of existing water pollution control statutes of these States, and a table summarizing status of legislation and administration.

(D-4) *Legal Aspects of Industrial Waste.* 8pp., mimeo. Reprinted from "Water and Sewage Works," June 1951.

Article by John H. Murdoch, Jr., Vice President and Counsel, American Water Works Service Co., Inc. (Philadelphia).

(D-5) *Water Pollution Control.* 18pp., mimeo.

Discussion by Louis F. Warrick, Chief, Technical Services Branch, Division of Water Pollution Control, PHS, including the six major classes of deficiencies existing in State water pollution control laws.

(D-6) *Pollution Abatement Appraisal of Current Regulations.* 18pp. Reprint from "Chemical Engineering Progress," January 1948.

Anthony Amable and R. R. Kite of the Dorr Company summarize results of a 15-point questionnaire on State regulations and laws concerning water pollution sent to heads of State and Territorial Health Departments. The most troublesome waters for each State reporting are listed. Conclusions on legal, administrative and cooperative trends also indicated.

E. INDUSTRIAL WASTES

(E-1) *The Problem of Industrial Pollution.* 18pp., mimeo.

Paper by Willis M. Van Horn, Research Associate, The Institute of Paper Chemistry, on methods of industrial waste treatment, problems of the various industries, and bibliography on literature cited.

(E-2) *Complex Pollution Problems Faced by Industries.* 8pp., mimeo. Reprinted from "Wastes Engineering" journal, January 1962.

Highlights of the industrial wastes and pollution control papers and discussions presented during the technical sessions of the 1961 annual convention of the Federation of Sewage and Industrial Wastes Associations at St. Paul, Minn.

(E-3) *The Administration and Industrial Significance of the National Water Pollution Control Program.* 11pp., mimeo.

A discussion by Carl E. Schwob, Chief, Division of Water Pollution Control, PHS, of the Water Pollution Control Act, the program being carried out, the President's Water Pollution Control Advisory Board, and the National Technical Task Committee on Industrial Waste.

(E-4) *Symposium on Treatment of Wastes.* 88pp. Reprinted from "Industrial and Engineering Chemistry," March 1950.

Articles on neutralization of acid, cotton finishing liquors, cotton printing and finishing wastes, operation of anaerobic fermentation plants, separation of oil refinery waters, underground disposal of process water, wash water treatment and fine coal recovery, chemical treatment of white water, and compressed yeast waste treatment.

(E-5) *Central States Set Pace in Industrial Wastes Treatment.* 17pp., mimeo. Reprinted from "Wastes Engineering" journal, October 1951.

"Symposium. . .showing. . .a bird's-eye view of what has been accomplished in industrial waste treatment, in particular, and sewage treatment, in general. . . in [Illinois, Indiana, Minnesota and Wisconsin]."

Contains the following:

Industrial Dispersal Increases Wastes Problem in Indiana. Perry E. Miller, Chief, Industrial Wastes Section, Division of Sanitary Engineering, Indiana State Board of Health.

By-Product Recovery Features Illinois Wastes Progress. A. Paul Trumper, Sanitary Engineer, Illinois Sanitary Water Board.

Dairy and Food-Processing Wastes Predominate in Minnesota. William J. Uher and Harvey O. Rogers, Division of Water Pollution Control, U. S. Public Health Service.

Wisconsin's Stream Pollution Control Program. T. F. Wisniewski, Director of Water Pollution Control, and O. J. Muegge, State Sanitary Engineer, Wisconsin State Board of Health and Committee on Water Pollution.

Treatment Works Needed in Upper Mississippi-Great Lakes Drainage Basins. Paul W. Reed, Basin Engineer, Upper Mississippi and Great Lakes Drainage Basins Office, U. S. Public Health Service, Chicago.

Indiana, Illinois Need 311 Sewage-Wastes Plants in Ohio-Lake Erie Drainage Basins. W. W. Towne, Basin Engineer, Ohio and Tennessee Drainage Basins Office, U. S. Public Health Service, Cincinnati.

(E-6) *Industrial Wastes--Possibilities of Recovery and Utilization.* 16pp. From "ASCE Proceedings," September 1948.

Discussion by F. W. Mohlman based on a 12-year study of industrial wastes in Chicago where more than 300 plants were inspected, wastes measured, sampled and analyzed.

(E-7) *Stream Pollution Control Activities of Industrial Associations.* Reprinted from "Sewage Works Journal," January 1949.

W. H. Wisely summarizes results of a survey to gather information on past, present, and planned accomplishments of industrial associations in the way of pollution abatement, how they are going about it, and when they began. Results are presented according to industry served, with names and addresses of various industrial organizations listed at the end of the article.

(E-8) *Industrial Wastes.* 119pp. Reprinted from "Industrial and Engineering Chemistry," May 1947.

Articles on the U. S. Public Health Service and industrial pollution control, State responsibility in stream pollution abatement, creation and correction of industrial wastes, atmospheric pollution, pollution control at a large chemical works, pharmaceutical and biological plants, cornstarch processes, rubber industry, coke and gas industry, recovery of fermentation residues as feeds, dairy industry, waste pickle liquor, canning industry, citrus canning industry, tanning industry, brass and copper industry, packing house industry, acid mine drainage, coal washery plants, textile industry, beet sugar industry, pulp and paper industry, and bibliography on chemical wastes.

(E-9) *The Water Problem.* Reprinted from "Chemical Engineering," July 1949. 8pp.

Includes a discussion of the amount of water needed by various industries, quality required, critical areas, use of U. S. Geological Survey data to obtain water supplies, utilization and reclamation, use of sea water, and water cost.

(E-10) *Functions of the National Technical Task Committee on Industrial Waste.* 8pp., mimeo.

Louis F. Warrick, Chief, Technical Services Branch, Division of Water Pollution Control, PHS, discusses industry's activities in the water pollution control program, the functions of the Committee, and industries participating.

(E-11) *Minutes of the May 1950 Meeting of the National Technical Task Committee on Industrial Wastes.* 100pp., mimeo.

Speeches by each of the representatives of member industries of the National Technical Task Committee on Industrial Wastes.

(E-12) *Inventory of Industrial Waste Treatment Methods, Problems and Projects* (punched cards).

Representatives of member industries of the National Technical Task Committee on Industrial Wastes have contributed information on their industrial waste treatment methods, problems and projects. These data have been put on punch cards. Cards are not available for distribution but information on specific phases of industrial waste treatment and disposal will be copied from the cards on request. Member industries are: automotive, beet sugar, canning, chemical, coal, coke, corn, dairy, distilling, electric, electroplating, fermentation, fisheries, frozen foods, gas, iron and steel, lumber, manufacturing meat, mining (other than iron and coal), non-ferrous metals, paint, varnish and lacquer, petroleum, poultry and eggs, power, pulp, paper and paperboard, railroads, rubber, tanning, and textiles.

Note: Requests for information on specific industrial wastes problems should be directed to the Chief, Technical Services Branch, Division of Water Pollution Control, U. S. Public Health Service, Washington 25, D. C.

F. DOMESTIC WASTES

(F-1) *A Guide to Municipal Sanitation.* 30pp.

Pamphlet of the Interstate Commission on the Potomac River Basin outlining "problems facing municipalities in the control of pollution in the waters of the Potomac River Basin. It consists of a statement describing pollution and its control, together with the major municipal waste treatment problems facing every city and town throughout the basin. A summary of the procedure by which a city or town can initiate pollution abatement projects is also included." (Bibliography on financing methods and other pertinent phases of treatment works problems.)

(F-2) *Summary of Latest Available Data on Sewage Treatment Plants in the United States.* 6pp., mimeo.

Tabulation based on the 1948 inventory of sewage treatment plants, prepared by Environmental Health Center, PHS, Cincinnati, Ohio.

(F-3) *Statistical Summary of Sewage Works in the United States.* 29pp. Supplement 213 to "Public Health Reports", April 1950.

Report by John R. Thoman, U. S. Public Health Service, which "summarizes, interprets and analyzes data on the sewage works in the United States based on the '1945, Inventory of Water and Sewage Facilities.'"

(F-4) *Individual Sewage Disposal Systems.* 33pp. Reprint 2461 (rev. 1947), U. S. Public Health Service.

Recommendations of Joint Committee on Rural Sanitation, includes a discussion of water carriage and nonwater carriage sewage disposal methods.

G. RESEARCH AND STANDARDS

(G-1) *Water Quality Criteria.* 25pp.

Booklet of the Interstate Commission on the Potomac River Basin. With the cooperation of the States of the Basin "the Commission has formulated water quality criteria which may be used as a guide for measuring the quality of water in the Basin's streams; has mapped the existing conditions of the different streams in terms of these criteria and has mapped a recommended first step in a progressive stream improvement program."

(G-2) *Bacterial Standards for Natural Waters.* 11pp., mimeo.

Paper by Abel Wolman, Professor of Sanitary Engineering, The Johns Hopkins University, which includes a discussion of the reasons for growth of stream standards, standards vs. judgment, safety factors, wide range of permissible limits, conclusions of Joint Committee of the Conference of State Sanitary Engineers, and a bibliography.

(G-3) *Bacterial Standards for Natural Waters.* 3pp., mimeo. Reprinted from "Sewage and Industrial Wastes" journal, March 1950.

Albert H. Stevenson, Sanitary Engineer, U. S. Public Health Service (Cincinnati), comments on Professor Wolman's paper (See G-2).

(G-4) *How to Apply Stream-Pollution Standards--A Proposal for Evaluating Economic As Well As Technical Factors.* 1p. (photostat).

Discussion in "Engineering News-Record" (August 18, 1949) of a method of allocating a stream's capacity to receive waters.

(G-5) *A Study of the Pollution and Natural Purification of the Sciota River.* 158pp. Public Health Bulletin No. 276.

Report on processes of natural purification in polluted waters. "The survey was undertaken to obtain definite measurements of the transformations occurring in a stream following major changes in the intensity of pollution and to obtain data on the rates of natural purification in a smaller stream."

(G-6) *Pollution Abatement Policy.* 12pp., mimeo.

Paper by Thomas R. Camp presented at an ASCE meeting in Boston, Mass. Indicates the difficulty in attempting to establish one standard pollution abatement policy--that each problem is unique and should be studied on its merits; also standards for various water uses.

(G-7) *Current Research Projects on Industrial Wastes at Various Institutions.* 23pp., mimeo.

List compiled from "Review of Current Research and Directory of Member Institutions" (1951), Engineering College Research Council, American Society for Engineering Education.

(G-8) *Manual of Recommended Water-Sanitation Practice.* 40pp. Public Health Bulletin No. 296.

Manual on features of water-supply systems of sufficient importance to be included in a sanitary survey, recommended sanitary requirements for water treatment and distribution, and an explanatory discussion of the bacteriological and chemical requirements for potable drinking water.

(G-9) *Public Health Service Drinking Water Standards.* 14pp. Reprint 2697, U. S. Public Health Service.

Standards promulgated as regulations of the PHS, and used by carriers and others subject to Federal regulations.

(G-10) *List of Publications on Water Supply and Purification, Sewage and Industrial Waste Treatment, Stream Pollution,* (Revised 1950).

Technical publications issued by the Cincinnati Station (PHS) since 1913. Results of observations and research on above subjects are presented and discussed. Available from U. S. Public Health Service, Environmental Health Center, 1014 Broadway, Cincinnati, Ohio.

H. BIOLOGICAL ASPECTS OF WATER POLLUTION

(H-1) *Studies on the Digestion of a Sewage-Filter Effluent by a Small and Otherwise Unpolluted Stream.* 48pp., mimeo.

Results of an investigation by Robert Spurr Weston and C. E. Turner, Sanitary Research Laboratory, Massachusetts Institute of Technology (during 1914-16), on "the digestion by a small and rather slow stream of the tolerably well purified effluent of the sewage disposal works of a modern industrial city [Brockton, Mass.] of 65,000 inhabitants."

(H-2) *Aquatic Invertebrates as Indicators of Stream Pollution.* 8pp. From "Public Health Reports," U. S. Public Health Service, January 1952.

Clarence M. Tarzwell, Chief, and Arden R. Gaufin, Biologist, Biology Section, Environmental Health Center, PHS (Cincinnati), report on results of year-round field studies by the Center of the biology of stream sanitation on Lytle Creek (Ohio).

Available from the Biology Section, Environmental Health Center, U. S. Public Health Service, Cincinnati, Ohio.

(H-3) *The Identification of Microorganisms in Relation to Water Purification.* 14pp., mimeo. From "Journal of American Water Works Association," October 1942

James B. Lackey, Senior Biologist, Water and Sanitation Investigations, Sanitary Engineering Division, U. S. Public Health Service, writes that "better water means freedom from organisms, their organic debris and secretions, as well as tastes and odors," since they "not only cause tastes, odors and colored or turbid water, but they may shorten filter runs and play a part in the obstruction of pipes" and may even "protect bacteria against chlorination."

(H-4) *Sewage Treatment and Fish Life.* 10pp., mimeo. From "Sewage Works Journal," November 1933.

Carl L. Hubbs, Director, Institute for Fisheries Research, University of Michigan, discusses the effects of sewage on fish life and "the dovetailing of fishing, recreational, health and economic interests, as affected by sewage, treated and untreated."

(H-5) *The Use of Microscopic Organisms as Ecological Indicators and Methods of Sampling and Manipulation.* 6pp., mimeo.

James B. Lackey points out in a memorandum that "it is possible to take a sample of water and from a careful qualitative and quantitative analysis of its organisms, accurately deduce many facts about the source of the sample."

(H-6) *A Study of Some Ecologic Factors Affecting the Distribution of Protozoa.* 28pp. From "Ecological Monographs," Vol. 8, No. 4, October 1938.

Study by James B. Lackey containing a "List of Protozoan Species Identified from Eight Types of Habitats; Showing the Number of Times Each Species Occurred in the Total Number of Samples Examined," and a bibliography.

(H-7) *Symposium on the Role of Ecology in Water Pollution Control.* 18pp., illus. Reprinted from "The Scientific Monthly." January 1952.

Contains the following papers:

Role of Algae in Sewage Oxidation Ponds.
Harvey F. Ludwig and William J. Oswald, Sanitary Engineering Laboratories, University of California (Berkeley).

Protozoa as Indicators of Pollution.
John L. Mohr, Department of Zoology, University of Southern California (Los Angeles).

Aspects of Water Pollution Study in the California and Great Basin Area.
Curtis L. Newcombe, Division of Water Pollution Control, U. S. Public Health Service.

Water Pollution: A Factor Modifying Fish Populations in Pacific Coast Streams.
Robert M. Paul, Department of Fish and Game, State of California (San Francisco).

Some Relationships of Phytoplankton to Pollution.
Harry K. Phinney, Department of Botany, Oregon State College (Corvallis).

(H-8) *Critical Review of Literature on the Toxicity of Industrial Wastes and Their Components to Fish.* 27pp., with references. Reprinted from "Sewage and Industrial Wastes," November 1950.

Peter Doudoroff and Max Katz, Biologists, Environmental Health Center, PHS, Cincinnati, Ohio, present in this article an up-to-date review of toxicity literature on alkalies, acids and inorganic gases.
Available from the Biology Section, Environmental Health Center, U. S. Public Health Service, Cincinnati, Ohio.

(H-9) *Bio-Assay Methods for the Evaluation of Acute Toxicity of Industrial Wastes to Fish.* 18pp. Reprinted from "Sewage and Industrial Wastes," November 1951.

Article by Peter Doudoroff, Chairman, and B. G. Anderson, G. E. Burdick, P. S. Galtsoff, W. B. Hart, R. Patrick, E. R. Strong, E. W. Surber, and W. M. Van Horn, members, Committee on Research, Subcommittee on Toxicity, Section III, Federation of Sewage and Industrial Wastes Associations.
Committee describes "bio-assay procedures. . . intended for use in industry and other laboratories in evaluating the toxicity of wastes and of other water pollutants to fish."
Available from the Biology Section, Environmental Health Center, U. S. Public Health Service, Cincinnati, Ohio.

(H-10) *The Toxicity of Some New Organic Insecticides to Fish.* 8pp., mimeo.

Results of studies by Peter Doudoroff, Max Katz and Clarence M. Tarzwell of the toxicity to fish of some organic insecticides used for control of cotton-boll weevil, undertaken at request of Division of Water Pollution Control, PHS.

(H-11) *Annotated Bibliography of Pollution Surveys of the Coastal Waters of the United States with Special Reference to Sanitary Quality of Shellfish Growing Areas.* 79pp., mimeo.

Compiled by the Shellfish Branch, Division of Sanitation, PHS.
Listings are arranged by States under the headings: title or area, date, author and remarks.
Available from the Shellfish Branch, Division of Sanitation, U. S. Public Health Service, Washington 25, D. C.

(H-12) *Selected Biological References Applicable to Water Pollution Control Programs.* 22pp., mimeo.

Selected references compiled by William M. Ingram, Biologist, Ohio-Tennessee Drainage Basins Office, Division of Water Pollution Control, PHS, Cincinnati, Ohio.

(H-13) *Selected Biological References Applicable to Sewage Treatment.* 26pp., mimeo., illus.

Bibliography compiled by William M. Ingram which may 'serve those who are beginning to work in sewage treatment by providing a background of information on specific organisms associated with various treatment processes.'

I. WATER RESOURCES

(I-1) *The Report of the President's Water Resources Policy Commission (1950):*

Vol. 1. *A Water Policy for the American People.* 455pp., illus.

Suggested program for development of the Nation's water resources, with specific policy recommendations.

Vol. 2. *Ten Rivers in America's Future.* 821pp., illus.

Contains ten river basin studies--Columbia, Central Valley of California, Missouri, Colorado, Rio Grande, Connecticut, Alabama - Coosa, Potomac, Ohio and Tennessee--prepared as "background data to assist the Commission in working out the policy recommendations contained in Volume 1 of its report."

Vol. 3. *Water Resources Law.* 795pp.

Comprehensive study and review of existing water resources legislation prepared by the Commission's legal staff.

Summary of Recommendations. 18pp.

Reprint of the "Introduction" to Volume 1.

(Note: Not for free distribution. These publications may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at the following prices: Vol. 1, $3.25; Vol. 2, $6.00; Vol. 3, $2.25, and the "Summary of Recommendations," 15 cents. Separates of the river basin studies, reprinted from Vol. 2, are available at 50 cents to $1.00 each.)

(I-2) *A Water Policy for the United States [A Critique of the Report of the President's Water Resources Policy Commission].* 5pp.

Report reviewed by the Water Policy Panel, Engineers Joint Council, its eight Task Force Committees, its Committee on General Economic Principles and its Coordinating Committee.

Copies of the publication are available from the Secretary, Engineers Joint Council, 120 East 41st St., New York 17, N. Y.

(I-3) *National Water Policy.* 183pp.

"A statement of desirable policy with respect to the conservation, development and use of the National water resources" prepared under the auspices of the Water Policy Panel, Engineers Joint Council. Constituent societies of the Council include: American Society of Civil Engineers, American Society of Mining and Metallurgical Engineers, The American Society of Mechanical Engineers, American Institute of Electrical Engineers, and American Institute of Chemical Engineers.

Available from the Secretary, Engineers Joint Council, 120 East 41st Street, New York 17, N. Y.

J. FILMS

(J-1) *Clean Waters.* 16mm., color, sound, 30 minutes.

Presents the facts on the Nation's waterways, water pollution and sewage treatment. Produced by the General Electric Company, and approved by the U. S. Public Health Service. Usable for school and adult groups. Can be borrowed free of charge. Inquire Division of Water Pollution Control, U. S. Public Health Service, Washington 25, D. C.

(J-2) *Health and the Cycle of Water.* 16mm., black and white, sound, 30 minutes.

Covers problems of water pollution and water and sewage treatment, with illustrations of how a plant purifies water. Produced by Cast Iron Pressure Pipe Institute. Available from U. S. Public Health Service, Public Inquiries, Washington 25, D. C.

(J-3) *Taken for Granted.* 16mm., black and white, sound, 30 minutes.

A comprehensive survey of the work that is done by the local authorities in Middlesex County (England) to ensure that sewage is efficiently and adequately removed from built-up areas. One copy of film is available from Division of Water Pollution Control, U. S. Public Health Service, Washington 25, D. C.

(J-4) *Waters of the Commonwealth.* 16mm., color, sound, 25 minutes.

Shows the increase in both municipal and industrial pollution and the effect of long-time neglect on many phases of life connected with our use of water. Also pictures a plan for solving pollution problems through State legislation, research, and actual construction of treatment facilities. Produced by the State of Pennsylvania. Can be borrowed free of charge. Inquire Division of Water Pollution Control, U. S. Public Health Service, Washington 25, D. C.

(J-5) *River at Your Door.* 16mm., color, sound, 25 minutes.

The story of how the citizens of one river valley solved their pollution problems. Although the situation portrayed is not a typical one in some respects, the presentation of community action is applicable anywhere. Can be borrowed free of charge. Inquire Division of Water Pollution Control, U. S. Public Health Service, Washington 25, D. C.

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